

NUCLEAR UTILITY YEAR 2000 READINESS

Appendix H

COMPLIANCE CHECKLIST

YEAR 2000 COMPLIANCE CHECKLIST

This checklist helps application owners, application managers and the Year 2000 Program team evaluate Year 2000 compliance of an application. The checklist should be jointly reviewed and completed by both business subject matter experts and technical team members who are responsible for support of the application. Please answer all questions as thoroughly as possible. Include any documents that will help in the evaluation process, such as requirement definition, test plans, test results, etc. The answers will determine if an application is compliant.

After the Year 2000 Compliance Checklist has been completed, the application business unit owner, the application maintenance support, and the Year 2000 Program QA/QC Manager will review the checklist results. If the application is found to be Year 2000 compliant, sign-off by both the application business unit owner and the application maintenance support group will be required. If the application is found not to be in compliance, then the application business unit owner and the application maintenance support group will have two options:

1. have your application support group bring it into compliance
- or
2. turnover the application to the Year 2000 Program Team to bring the application into compliance.

If the option is to have the application support personnel bring the application into compliance, all Year 2000 Program standards must be followed. The Year 2000 Program Team must be included in the setting up of timelines, deliverables, and certification process. If the option is to turnover the application to the Year 2000 Program Team for certification, the Year 2000 Program Team will take complete responsibility for bringing the application into compliance.

1. Application Identification

Please provide application information.

- A. Application Name _____
- B. Business Unit Owner of
the Application _____
- C. Sponsoring Department of
the Application (VP Org.) _____
- D. Application Subject Matter
Expert Name _____
- E. Application Technical
Expert Name _____
- F. Is the application in
operation today? _____

Additional Comments: _____

2. Year 2000 Dates

Applications work with dates that are weeks, months, and years into the future, or may reference dates in the past. For example, inventory applications may need to process data that spans from 1950 to the present and need to keep its records for at least 50 years. Please verify your application's ability to successfully process data containing dates, with no adverse effect on the application's functionality and with no impact on the customer or end user. Can your application successfully process:

	VERIFIED	NO	N/A
a. Dates in 20th century (1900s)	_____	_____	_____
b. Dates in 21st century (2000s)	_____	_____	_____
c. Dates across century boundary (mix 1900s and 2000s)	_____	_____	_____
d. Crosses 1999 to 2000 successfully	_____	_____	_____

	YES	NO
Are test data sets available for regression testing on the next application release for any of the above?	_____	_____
Are test results and reports available for review for any of the above?	_____	_____

Additional Comments: _____

3. Other/Indirect Date Usage

Have you verified date handling process (and corrected if necessary):

	VERIFIED	NO	N/A
a. Dates embedded as parts of other fields	_____	_____	_____
b. Dates used as part of a sort key	_____	_____	_____
c. Usage of values in date fields for special purposes that are not dates (for example, using 9999, 0000, 99 or 00 to mean "never expire")	_____	_____	_____
d. Date dependent activation or deactivation of passwords, accounts, rates, etc.	_____	_____	_____
e. Date representation in the operating system's file system (creation dates and modification dates of files and directories)	_____	_____	_____
f. Date dependent utilities	_____	_____	_____
g. Date dependencies in encryption/decryption algorithms	_____	_____	_____
h. Date dependent random number generators	_____	_____	_____
i. Hardware and/or operating system does not reset the year to 1980 or 1984 on reboots after 31 December 1999 (<i>corrections by operating system utilities allowed</i>)	_____	_____	_____

YES NO

Are test data sets available for regression testing on the next application release for any of the above?

Are test results and reports available for review for any of the above?

Additional Comments: _____

4. Internal Dates

Dates and date fields must be clear and explicit within the applications which use them.

	VERIFIED	NO	N/A
a. Display of dates is clear and explicit (the ability to correctly determine to which century a date belongs either by explicit display, i.e. 4-digit year, or application or user inference, such as applications that only process and maintain year-to-date data)	_____	_____	_____
b. Printing of dates is clear and specific, such as dates in report headings	_____	_____	_____
c. Input of dates is clear and distinct to the application using them	_____	_____	_____
d. Storage of dates is clear to the application that uses them.	_____	_____	_____
e. Date compares and date manipulations within the application are processed correctly.	_____	_____	_____

	YES	NO
Are test data sets available for regression testing on the next application release for any of the above?	_____	_____
Are test results and reports available for review for any of the above?	_____	_____

Additional Comments: _____

5. External Interfaces

External interfaces are identified and validated to correctly function for all dates passed from your application.

	VERIFIED	NO	N/A
a. Verified that interfacing application functions the same when the data passed to that interface is generated from your application (for example, an interface is two-digit year and another is four-digit year).	_____	_____	_____
b. For each interface that exchanges date data, you and the responsible organization have discussed and verified that you have implemented consistent Year 2000 corrections that will correctly process date data passed between your applications.	_____	_____	_____

	YES	NO
Are test data sets available for regression testing on the next application release for any of the above?	_____	_____
Are test results and reports available for review for any of the above?	_____	_____

Additional Comments: _____

6. Date Field Type

Describe the type of date fields used by the application, in either application software or data bases.

	VERIFIED	NO	N/A
a. Does the application use two-digit year data fields?	_____	_____	_____
b. Does the application use four-digit year data fields?	_____	_____	_____
d. When will the windowing logic fix fail?	_____		

	YES	NO
e. If two-digit, does the application use a windowing logic technique to correctly infer the century?	_____	_____
If yes, what windowing date ranges does it use:	_____	
From _____ To _____		

f. Are there any internal data types for date? Such as character or variable character?	_____	_____
If yes, what is the range of dates that the date field can represent?	_____	
Minimum Date _____ Maximum Date _____		

If character type date, what process does the application use to convert the date data?

	YES	NO
Are test data sets available for regression testing on the next application release for any of the above?	_____	_____
Are test results and reports available for review for any of the above?	_____	_____

Additional Comments: _____

7. Vendor Provided Software

Please provide the following information with regard to "Vendor Provided" software components.

	YES	NO	N/A
a. Does the application use vendor provided software packages or infrastructure components?	_____	_____	_____
If yes, what is the software's name? _____			
b. Has the vendor provided software been verified to be year 2000 compliant?	_____	_____	_____
c. How was Year 2000 compliance determined? (certified by vendor or contractor, tested in-house, etc.)	_____		

Additional Comments: _____

8. Year 2000 Testing Information

Please provide the following information with regard to testing the application for Year 2000 compliance:

- a. Testing Organization _____
- b. Name of QA/QC Manager _____
- c. Date that Year 2000 compliance testing was completed _____
- d. How was Year 2000 compliance determined? (certified by vendor or contractor, tested in-house, inspected but not tested, etc.) _____
- | | YES | NO |
|--|-------|-------|
| e. Do you follow a defined process for tracking the status of all Year 2000 problems reported, changes made, testing done, compliance verified, and applications returned to production? | _____ | _____ |

Additional Comments: _____

9. Summary of Results

Your application is Year 2000 compliant if any of the following statements are true. Please mark as appropriate.

You completed a full independent testing of the application and you answered all the questions with a positive response (except for either 7a or 7b). _____

An independent audit of your application was completed and you answered all questions with a positive response (except for either 7a or 7b). _____

Your application was not tested or audited but, your application uses only **four-digit century** date fields and you answered all questions with a positive response except for 7a. _____

Your application is **NOT** Year 2000 compliant if any of the following statements are true. Please mark as appropriate.

Your application was **not** tested or audited and, your application uses only two-digit century fields. You answered all questions with positive responses except for 7b. _____

Your application was **not** tested or audited and, your application has ambiguous usage of dates. Questions 5-a,b,c or d (Internal Dates section) were answered with negative responses. _____

Your application was **not** tested or audited and your application needs additional work before Year 2000 processing can be assured with any level of reliability. If any of the sets of questions, 2, 3, 4, 5, or 7b were answered with negative responses. _____

Your application cannot be certified or has not yet been certified as compliant. _____

9. Year 2000 Compliance Sign-off

After review of application name, the undersigned certify that application name is Year 2000 Compliant. Attached is a listing of all certified programs associated with this application.

Sign-off Information

Business Application Owner
(Manager)

Date

Application Support (Manager)

Date

Year 2000 QA/QC Manager

Date

Internal Auditor Manager

Date

Year 2000 Compliance Certification Checklist, Non-IS Supported

Instructions: A checklist must be completed for each version of each application, equipment or system before it can be certified for continued production use. Fill out Section 1, and if the equipment or system is digitally-controlled or otherwise operates from firmware, fill out Section 2. When completed, return this checklist to the Y2K Coordinator.

The checklist will then be used to prioritize and schedule actual Y2k Compliance Testing per Section 3. This testing may be performed by the user, or by the NMIS Y2k Team. When Compliance Testing is completed, this checklist **MUST** be signed by the Key User Contact Supervisor or a representative of the NMIS Y2k Team and returned to the Y2K Coordinator.

This information will be reviewed by the Year 2000 QA Team and you will be notified when your application has completed the certification process. If you have any questions or comments, please add this information at the bottom of page 5.

Section 1

Site: _____ Dept/Wkgrp: _____

Application, Equipment or System Name: _____

Application Function: _____

Version: _____ Vendor: _____

& Location(s) of Other Licensed Copies: _____

Hardware Platform: _____

Operating System/File Type: _____

Key User Contact: _____ Ext: _____

Key User Supervisor: _____ Ext: _____

Outline strategy for implementing compliance (i.e., warranty upgrade, purchase upgrade, migrate to different application, date roll-back, windowing, field expansion):

Cat I			
Cat II			
Cat III			
For NMIS Use Only	Cat III	Cat II	Cat I

Please check the appropriate response.

Yes No N/A

☐
☐
☐

1. Is this Version of the application or system the current Production Version?

_____ *Skip to Question 5.*

Please check the appropriate response.

Yes No N/A

- ☐ ☐ ☐ 2. Is the Software License for application or system renewed periodically?

_____ Specify Period and Vendor: _____

- ☐ ☐ ☐ 3. The application or system:

Is, of itself, Nuclear Safety-Related or NSSS
Provides Direct Control of Nuclear Safety-Related/NSSS Items
Is Capable of Forcing Immediate or Near-immediate Plant Shutdown
Is used for Nuclear Safety-Related Activities/Calculations
Provides Automatic Control of Critical Plant Functions
If Inoperative, Directly/Indirectly Leads to LCO's of 48 hrs or Less
Is used to Protect the Health and Safety of the General Public

- ☐ ☐ ☐ 4. The application or system:

Is used to Protect the Health and Safety of Plant Personnel
Provides Control of Plant Habitability Systems
If Inoperative, Directly/Indirectly Leads to LCO's > 48 hrs
Is used for Control/Tracking of Other Critical Plant Information/Operations
(Specify:)

- ☐ ☐ ☐ 5. The application or system:

Provides Direct Control of Other Plant Systems
Is used for Control/Tracking of Other Plant Information/Operations
Is NOT the current Production Version

- ☐ ☐ ☐ 6. The application or system:

Contains Date/time Stamped Data
Is Used for long-term Averaging, Integrating, Trending, Scheduling, or
Reporting

- ☐ ☐ ☐ 7. Is the Application or System Used for short-term Averaging,
Integrating, Trending, Scheduling, or Reporting?

- ☐ ☐ ☐ 8. Is the Application or System Used for Time-Independent
Calculations/Operations?

- ☐ ☐ ☐ 9. Does this Application or System interface with other applications?

_____ Specify Send or Receive and App/System: _____

Section 2 For every piece of equipment or system that is a PLC, digitally-controlled instrument or M&TE, or otherwise operates from Firmware, complete Section 2. Otherwise STOP, and return this checklist to the Y2K Coordinator.

Equipment or System Type: _____ MFR: _____

Equipment or System Serial #: _____

Model #: _____ Asset Tag #: _____

Detailed System Location: _____

CPU Mfr/Type: _____ Date Code: _____

& Type of ROM/PROM/EPROM's: _____

Date Code(s): _____

Firmware Version Installed: _____ Firmware Vendor: _____

Vendor's Current Firmware Version: _____

Source Code Version: _____

Please check the appropriate response.

Yes No N/A

☐ ☐ ☐ 10. Does the Equipment or System have an EPN or EID number?
_____ Specify: _____

☐ ☐ ☐ 11. Is the Equipment or System Part of, Installed on, or Interface to a system
_____ having an EPN or EID number?
Specify: _____

☐ ☐ ☐ 12. Is the Equipment or System under Warranty?

☐ ☐ ☐ 13. Does the Equipment or System have a Maintenance Contract?
_____ Specify Vendor: _____

☐ ☐ ☐ 14. Does the Equipment or System Operating History, Vendor Technical
_____ Manual, Restart Procedure, or Maintenance or Calibration Procedure
indicate any form of Date Input or Date Check?
Specify: _____

☐ ☐ ☐ 15. Does the Equipment or System Operating History, Vendor Technical
_____ Manual, or Maintenance or Calibration Procedure indicate that Batteries
are used for Retention of Default or Setup Information?
Specify: _____

Please check the appropriate response.

Yes No N/A

☐ ☐ ☐ 16. Does the Equipment or System have a Data or an Event Historian?

☐ ☐ ☐ 17. Does the Equipment or System Perform Trending?

☐ ☐ ☐ 18. Does the Equipment or System Perform Time-dependent Calculations, such as Averaging or Integration?

☐ ☐ ☐ 19. Does the Equipment or System Print reports that include the date?

Describe the nature or use of the Historian, Trend, Calculation, or Report, including any Tech Spec, Regulatory, or Station Commitments that it is used to fulfill. _____

Section 3

Please check the appropriate response.

Yes No N/A

☐ ☐ ☐ 20. Does the application use four digits (YYYY) to represent the year?

☐ ☐ ☐ If it does not, can the century be logically determined and dates correctly processed?

☐ ☐ ☐ 21. Does the application perform date duration calculations? This includes the following calculations:

- a) the duration between two dates
- b) the date based on starting date and duration
- c) the day of week, day within year, week within year

☐ ☐ ☐ 22. Will the application properly process decisions that require comparisons of dates from before and after the year 2000?

☐ ☐ ☐ 23. The application has been tested with the following date data and can successfully roll over to the next date:

- a) 09/09/1999 - could be set to mark end of file
- b) 12/31/1999 - ability to roll over to year 2000
- c) 01/01/2000 - Saturday (In 1900, this is a Monday)
- d) 01/02/2000 - Sunday
- e) 01/03/2000 - Monday (The 1st workday of year)

- f) 02/28/2000 - 2000 is a leap year (Monday)
- g) 02/29/2000 - Tuesday (Leap Day)
- h) 03/01/2000 - Wednesday
- i) 04/01/2000 - Saturday
- j) 12/31/2000 - ability to roll over to year 2001
- k) 01/01/2001 - Monday, first day of year

- ☐ ☐ ☐ 24. The application can successfully convert between date representations (YYMMDD to Julian).
- ☐ ☐ ☐ 25. If date/time date is stored as an offset since a base date/time, the storage capacity has been checked so that it will work correctly through the 21 century.
Indicate Storage Cap'y End Date _____
- ☐ ☐ ☐ 26. Does the application use special date values as logical flags? (for example, "99" to mean "no end date" or "00" to mean "does not apply")
- ☐ ☐ ☐ 27. Do reports print correctly? Specifically, reports do not contain any hard coded literals such as '19' for the century.
- ☐ ☐ ☐ 28. Do screens contain four digit years or can the correct century be inferred?
NOTE: Screens should not contain any hard coded literals such as '19' for the century.
- ☐ ☐ ☐ 29. Will the application correctly sort by date when the dates are from both before and after the year 2000?
- ☐ ☐ ☐ 30. Has the key function or calculation been tested? Have the results been verified with the appropriate technical support group?

Testing Performed By: _____

Date: _____

Key User Supervisor Signature: _____

Date: _____

Title: _____

Additional Comments:

